Small Computer System Interface (SCSI) for IBM Personal System/2

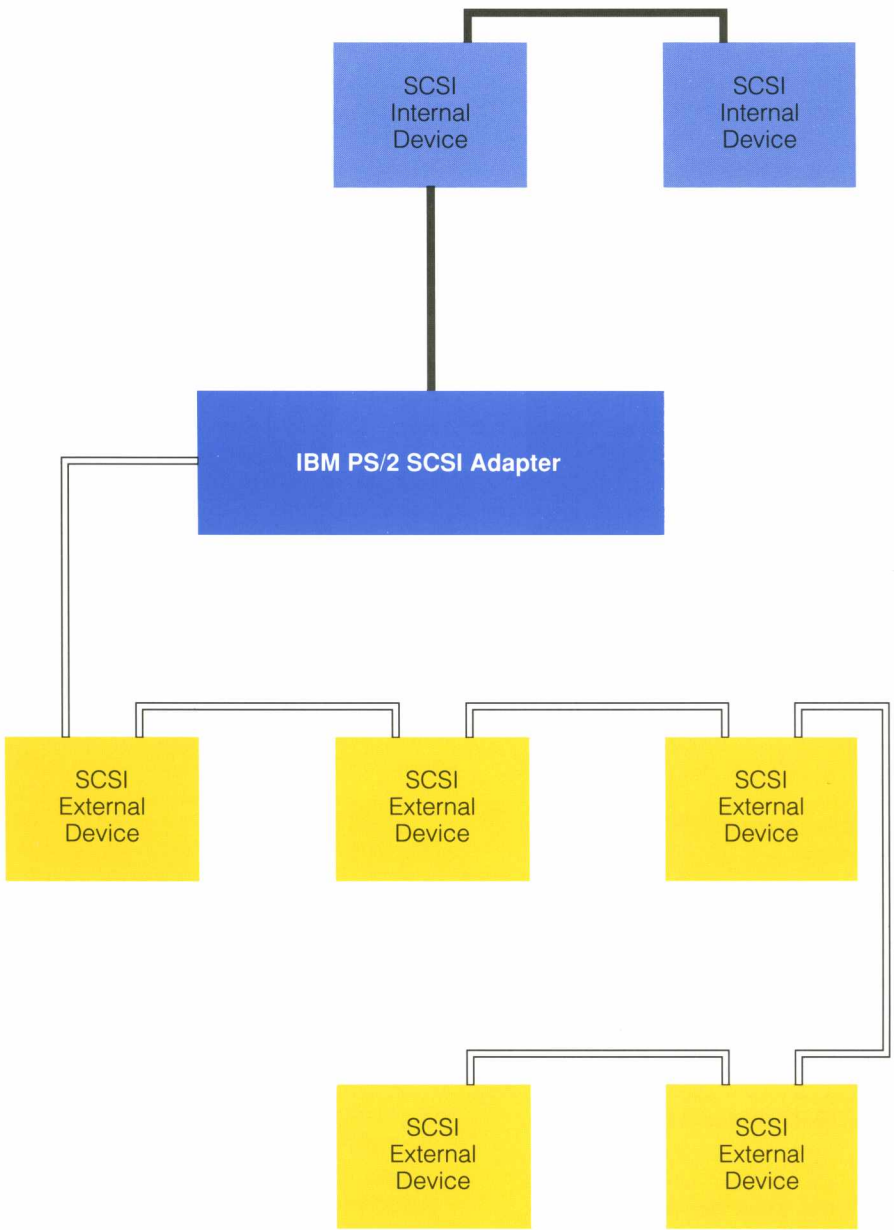
More expansion and growth for your Personal System/2

Put the industry-standard ANSI Small Computer System Interface (SCSI[1]) to work in your Personal System/2®—and work with more files and peripherals than ever before. With SCSI, you can support up to seven SCSI devices from a single Micro Channel® expansion slot. And that means you'll have more free slots available for adding functions like communications, networking and advanced graphics.

Just as important, you can use the hardware-independent SCSI standard to take advantage of tomorrow's products and technologies when they become available—while protecting your present investment. And for today, you can enhance your PS/2® by adding high-performance fixed disks, CD-ROM drives, and more—all on a single PS/2 SCSI adapter.

Combine Micro Channel performance with SCSI flexibility

Because IBM's SCSI subsystems are designed for your Micro Channel system, they help your PS/2 do more work. For example, since IBM's SCSI adapters perform intelligent busmaster functions, they can operate independently of your system processor. The result: improved system throughput and better I/O management for network file servers. It all means that data can be transferred faster, more efficiently and more reliably to meet the demands of many users or I/O-intensive applications.



IBM

Access more data faster with SCSI fixed disks

With SCSI adapters, some PS/2 systems can support multiple internal fixed disks for impressive file server capacity—over 1 gigabyte (GB) on certain models. Add an External Enclosure for SCSI Devices and you can add up to seven devices to any Micro Channel model... and back up your data on a SCSI tape drive that can hold 2.3GB of data. And, for equally impressive performance, they can accept any combination of IBM 60MB, 80MB, 120MB, 160MB, 320MB and 400MB SCSI internal fixed disk drives with average seek times as fast as 11.5ms.

Even better, the adapters permit a PS/2 to support both SCSI and non-SCSI drives—including disks with ESDI or ST506 interfaces. So you can use them to protect the investment you have made in fixed disk storage while taking advantage of today's high-performance drives.

Add powerful resources economically with CD-ROMs

Imagine a dictionary, thesaurus, spelling-checker and quotation library—all online for ready reference by your secretaries or writers. Picture entire volumes of clip art, illustrations and graphics on hand to liven up your publications and presentations.

IBM SCSI CD-ROM drives can put these resources online. Up to seven CD-ROM drives can attach to a single SCSI adapter, so you can make multiple libraries and references available for your users. And the stereo output jack of the IBM CD-ROM drives allows you to add impressive sound to multimedia presentations.

Why is SCSI important to you?

Developed in the mid 1980s, the Small Computer System Interface (SCSI) is a widely used industry standard that supports I/O devices through a common interface and common protocol. The importance of SCSI stems from the fact that it provides an open architecture for attaching and controlling peripheral equipment—up to seven devices from a single adapter. So SCSI lets you take advantage of products offered by many different manufacturers.

SCSI offers investment protection, too, since it gives you an efficient, industry-standard growth path for expanding your system as new technologies become available.

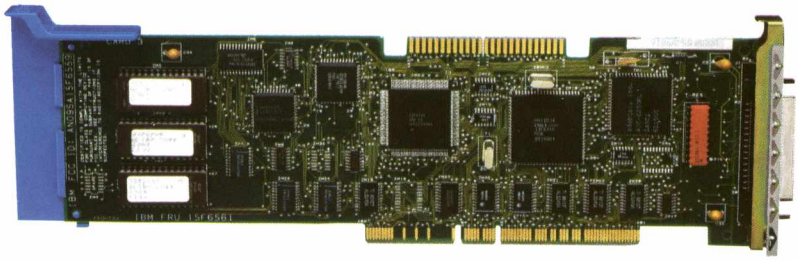
SCSI can bring you the benefits of high-performance fixed disks, helpful CD-ROM libraries, and other standard SCSI devices—all from a single Micro Channel slot.

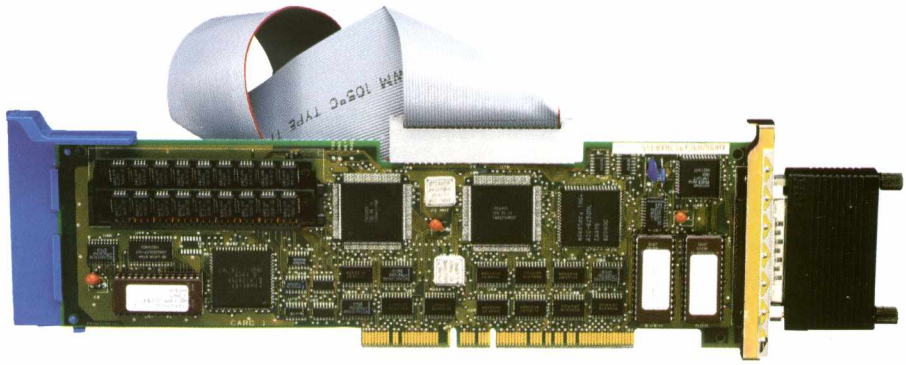
Get powerful flexibility and features from two SCSI adapters

Whichever IBM PS/2 SCSI Adapter you choose, you get expandability combined with high data transfer rates and Micro Channel support. Both adapters let you attach up to seven SCSI-compatible devices—and up to 28 devices can be supported on a single PS/2. And these adapters both offer busmastering capabilities to offload I/O tasks from your system processor for consistent high throughput.

The IBM PS/2 Micro Channel SCSI Adapter offers you a cost-effective SCSI solution for expanding your PS/2s. It fits in either a 16- or 32-bit Micro Channel slot and provides a data transfer rate of up to 6.6MB per second via its 16-bit data path.

For disk-intensive environments where overall performance is critical—like multiuser transaction processing or high-capacity network servers—the PS/2 Micro Channel SCSI Adapter with Cache offers additional performance advantages. Its 32-bit data path gives you a data transfer rate of up to 13.3MB per second—twice that of the 16-bit adapter. And it can use its built-in 512KB disk cache to free more of your system memory for running applications.





Both IBM PS/2 SCSI Adapters combine powerful Micro Channel busmastering capabilities with support for up to seven SCSI devices. So you get fast SCSI data transfer rates of up to 13.3MB per second—and balanced throughput as well.

IBM PS/2 Micro Channel SCSI subsystem

Feature	Benefit
ANSI SCSI-1 industry standard	• Enhances system expansion by supporting up to seven internal and external SCSI devices on one adapter—up to 28 SCSI devices on some PS/2s • Enables the connection of SCSI devices from other manufacturers • Protects your PS/2 investment by providing a device-independent architecture
Intelligent busmaster SCSI adapters	• Offload the system processor, allowing it to do more work • Provide balanced system performance and high throughput for multitasking and multiuser environments • Work with Micro Channel architecture to deliver more efficient and reliable data transfer
General-purpose SCSI interface	• Supports fixed disks and other SCSI devices on a single adapter • Keeps PS/2 expansion slots free for other features
Built-in fixed disk BIOS	• Lets you use both SCSI and non-SCSI fixed disk drives on the same PS/2 • Provides compatibility for DOS and Operating System/2® environments
Fast IBM 60MB, 80MB, 120MB, 160MB, 320MB and 400MB SCSI fixed disk options	• Increase the amount of high-speed storage available for floorstanding PS/2 models • Let you add fixed disk drives as you need them—up to five internal drives on some models • Allow you to tailor your storage capacity by using a mix of disk sizes
IBM CD-ROM options	• Provide low-cost alternatives for storing large amounts of read-only data • Support HIGH SIERRA or ISO 9660 industry-standard compact disk format
Optional external enclosure for SCSI devices	• Supports up to seven internal SCSI devices from any Micro Channel system • Allows storage expansion when you need it
Optional external enclosure for single SCSI device	• Supports one internal 5.25" or 3.5" SCSI device from any Micro Channel system

IBM SCSI cables and accessories

PS/2 Card to Option Cable (6451139)	A 60-pin to 50-pin connector cable required for attaching the first SCSI external device in the daisy chain; includes a 50-pin Option Interface Terminator required for the last external device in the chain.
PS/2 Option to Option Cable (6451042)	A 50-pin to 50-pin connector cable for attaching one SCSI external device to another.
PS/2 SCSI Fixed Disk Kit A (6451053)	Required to install SCSI fixed disk drives in the front DASD bay of the IBM Models 60, 65 SX and 80 386.
PS/2 CD-ROM Kit A (6450847)	Required to install the internal CD-ROM drive in the IBM Models 60, 65 SX and 80 386.
PS/2 Micro Channel SCSI Adapter External Terminator (6451039)	Required to terminate the Micro Channel SCSI Adapter with Cache when no external SCSI devices are attached. Comes standard with Models 90 XP and 95 XP.

SCSI cabling for external attachment

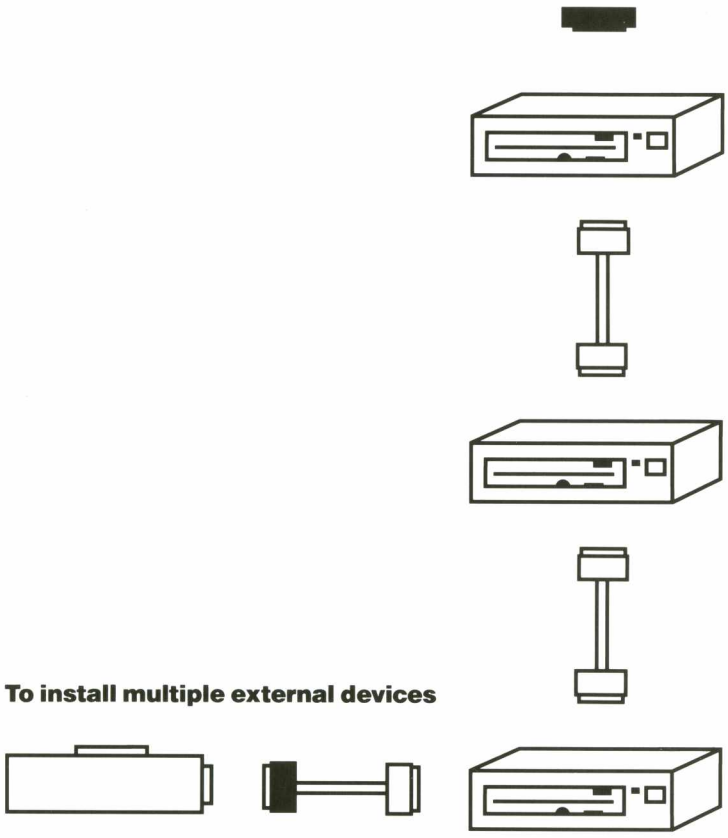
To install a single external device

SCSI adapter

Card to Option Cable P/N 6451139

Option Interface Terminator*

To install multiple external devices



Option Interface Terminator*

Last SCSI device

Option to Option Cable P/N 6451042

Next SCSI device

Option to Option Cable P/N 6451042

First SCSI device

SCSI adapter

Card to Option Cable P/N 6451139

*Included with Card to Option Cable. This terminator is not required on the External Enclosure for SCSI Devices (3511003).

IBM PS/2 Micro Channel SCSI product family at a glance

SCSI adapters	Micro Channel SCSI Adapter	Micro Channel SCSI Adapter with Cache
Part number	6451109	6451110
Configuration	Uses one 16- or 32-bit Micro Channel expansion slot; up to four SCSI adapters may be installed on some PS/2s	
Micro Channel		
Data path	16-bit	32-bit
Transfer rate	6.6MB/sec.	13.3MB/sec.
SCSI channel		
Data path	8-bit	8-bit
Transfer rate	5MB/sec.	5MB/sec.
Data cache	None	512KB
SCSI BIOS	Provides fixed disk interface with DOS and OS/2® environments; allows operation of both SCSI and non-SCSI fixed disks on the same PS/2; includes Power-on Self Test (POST) and a generic, hardware-independent interface for other SCSI devices	
Device support	Up to seven SCSI-compatible physical devices via IBM SCSI internal or external adapter connectors; up to eight logical devices can be defined for each physical device, to a maximum of 15 logical devices per adapter	
SCSI cabling	Serial "daisy-chain" cabling, with a total cable length not exceeding 6 meters; devices or adapters at the ends of the chain must be terminated	
Terminators	On-card terminator built in	Card edge terminator included; separate external terminator (Part number 6451039)

SCSI Fixed Disk Options	60MB SCSI fixed disk	80MB SCSI fixed disk	120MB SCSI fixed disk	160MB SCSI fixed disk	320MB SCSI fixed disk	400MB SCSI fixed disk
Part number	6451049	6451045	6451050	6451046	6451108	6451081
Average seek time	23ms	17ms	23ms	16ms	12.5ms	11.5ms

Supported systems	Model 60, Model 80 386 (-041, -071, -111 and -311); require IBM SCSI adapter; maximum of two SCSI fixed disks (internal)
	Model 65 SX, Model 80 386 (-061, -081, -121, -321, -A16, -A21 and -A31); one SCSI adapter is standard equipment; maximum of four fixed disks (internal)
	Model 90 XP 486 and Model 90 486 SX; SCSI Adapter with Cache is standard; maximum of three fixed disks (internal)
	Model 95 XP 486 and Model 95 486 SX; SCSI Adapter with Cache is standard; maximum of five fixed disks (internal)

SCSI CD-ROM	PS/2 CD-ROM Drive (internal)	PS/2 External CD-ROM Drive
Part number	6451113	3510001
Storage capacity	Approximately 600MB; HIGH SIERRA or ISO 9660 CD-ROM media format	
Supported systems (via PS/2 SCSI adapters)	All PS/2 Models 60, 65 SX, 80 386, 90 XP and 95 XP	All PS/2 Micro Channel models

SCSI tape drive	PS/2 2.3GB Full-High SCSI Tape Drive
Part number	6451121
Storage capacity	2.3GB
Data transfer rate	245KB/sec.
Supported systems	PS/2 Model 95 XP 486; supported on other Micro Channel models via the External Enclosure for SCSI Devices (3511003)

External enclosure	PS/2 External Enclosure for SCSI Devices
Part number	3511003
Maximum number of devices	Seven
Fixed disk storage	
Standard	320MB (12.5ms)
Optional	Up to six additional SCSI fixed disk drives (80MB, 160MB, 320MB) for maximum of 2.2GB
Other devices supported	PS/2 CD-ROM Drive; PS/2 2.3GB Full-High SCSI Tape Drive
Cabling requirements	Attaches to SCSI adapter in system unit via card to option cable. Cabling for installing up to seven internal SCSI devices is included

External enclosure	PS/2 SCSI Storage Enclosure
Part number	35100V0
Maximum number of devices	One 5.25" or 3.5" half-high SCSI device
Devices supported	PS/2 SCSI fixed disk drives (60MB, 80MB, 120MB, 160MB, 320MB or 400MB)
Cabling requirements	Standard 50-pin SCSI interface

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[1]*ANSI X.3-131-1986*

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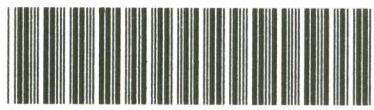

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